DOCUMENT RESUME

ED 141 358 SP 011 253

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TITLE Autonomous Work by Pupils.
INSTITUTION Council of Europe, Strasbourg (France). Committee for General and Technical Education.
PUB DATE 77
NOTE 27p.

EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS Autoinstructional Programs; *Discovery Learning; Educational Objectives; *Educational Trends; *Independent Study; Individualized Instruction; International Educational Exchange; *Learning Theories; Personal Interests; Self Evaluation; Social Change; *Teaching Methods

ABSTRACT

This monograph is a report on an international discussion of the desirability of autonomous work on the part of students. The rationale for autonomous work is twofold. First, this approach should lead the pupil to think about the learning process and take an active and responsible share in it. This will promote the development of personality by cultivating the critical faculties and a sense of responsibility. Second, the autonomous approach modifies the pupil/knowledge relationship and should lead to a deeper, because more personal, acquisition of knowledge and skills. Within the parameters of these two outlined objectives, the following areas of the subject are discussed: (1) Why develop autonomy in pupils? (2) How can such autonomy be defined? (3) How can autonomy and the various forms of independent study be developed? (4) How can autonomous work be evaluated? and (5) What are the conditions for progress in this teaching method? (JD)

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AUTONOMOUS WORK BY PUPILS

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COUNCIL FOR CULTURAL CO-OPERATION
Committee for General and Technical Education
Strasbourg

1977

SP011 253

Strasbourg April 1977

CCC/EGT (77) 15

COMMITTEE FOR GENERAL AND TECHNICAL EDUCATION

Autonomous work by pupils

by

Mr V Marbeau, Inspector General

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The endeavour to make pupils more autonomous has apparently become a major concern of school systems for most have incorporated it, implicitly or explicitly, into their educational objectives. It covers a wide variety of realities and aspirations, however, and so the approach adopted to it here is both pluralist and forward-looking.

First of all, we should ask what has caused school systems to look in this direction.

I. WHY DEVELOP AUTONOMY IN PUPILS?

The move towards autonomy is not something that has just been invented by modern education; to pretend otherwise would be an over-simplification and would disregard the fact that, in the best kind of traditional education, there was room for the pupil to take a hand in his own learning process. He did so, however, at the level of the application of his knowledge rather than at that of its acquisition and he remained subject to the teacher's control at all times, which is why the demand for autonomy has persisted and, owing to certain factors of change that are external to the school system but affect it powerfully, has recently become more insistent. Among the factors of change we distinguish between those deriving from:

A. the new conditions of education;

B. the new developments in theories of education;

C. the growth of educational technologies.

A. The new conditions of education

There are two sets of mingling and conflicting factors of change; some are physiological and intellectual, having to do with individuals, and the others are social and related to the evolution of modern society. The distinction is made for convenience only, however, and does not correspond to reality, for social factors act on individual personalities and are continually influencing them.

The changes taking place in pupils are now well known. Of special relevance to adolescents is the report on "The needs of the 16-19 age-group" by MM Janne and Géminard (Council of Europe 1973). Much attention has been paid to changes in teenage social behaviour; the acceleration of the process of biological maturing has been noted, together with increased sensitivity to external solicitations such as politics, sexual matters and quality of life; and at the same time a very definite fragility has been observed, resulting from apprehension in the face of our turbulent, eruptive, bewildering present day civilisation which, when combined with the uncertainties of starting work, can bring about a reaction of total refusal.

The changes have been intensified by the new conditions of schooling. Traditional education was conceived in terms of a relatively homogeneous class group, as far as pupils' levels of attainment and the socio-cultural make-up of their families were concerned. These conditions have now been radically altered by mass education, in which the learning group has become extremely heterogeneous (arrival of new social strata at secondary level, linked with the lengthening of compulsory schooling, and steadily increasing numbers of immigrant children in both primary and secondary schools).

This situation makes new demands: today's pupil is not like his predecessor or his class-mates, he needs a different kind of teaching, more highly personalised and better adjusted to his own particular needs and his growing demand for independence and freedom. These factors of change must be dealt with on top of others more directly linked to trends in present-day society.

By comparison with the relative stability of pre-war societies, the new one is founded upon rapid change, accelerated evolution and ceaseless questioning. The citizens of today, and even more those of tomorrow, will be continually adjusting to new circumstances; in school, the ability to do this is acquired by developing the pupil's sense of responsibility and aptitude for autonomy.

In addition, the mobility and flux of knowledge and employment has led us to think that to learn methods may be more useful than to amass knowledge, and that the concept of initial education at school should be replaced by the concept of life-long learning. This implies an aptitude for self-teaching, and a person's ability to do this will depend upon the extent to which his schooling has placed him in situations of responsibility and autonomy, for they are the ones most likely to give him a taste for personal effort and a desire to progress.

Lastly, it need hardly be said that the conditions of information have been substantially transformed. Teacher and book are no longer the only purveyors of knowledge, and the newspaper, poster, film and, of course, radio and television are playing an increasingly important role.

The triumph of the media was long regarded as an "American affair", but what has become known as the "parallel school" is now growing up all over the world. The American schoolchild, as everybody knows, spends 30 hours a week on average in front of the television screen and only 25 hours at school; but surveys have now established that pupils in the Tarn-et-Garonne watch television for almost a thousand hours a year, as against 800 hours spent in the classroom and a Japanese sociologist has estimated that an 18 year-old has spent the equivalent of 2 1/2 years of his life looking at the "box". A nation-wide survey carried out in May 1973 by the French Institut National de Recherche et de Développement Pédagogique among a representative sample of French secondary school pupils showed that 40% read a regional daily paper every day, 8.5% a national daily; 55% watch television and 63.5% listen to the news on the radio. The school cannot ignore this reality; its role now is to help the young sift through and clarify the avalanche of indiscriminate messages flung at them by the media. Pupils must be taught how to sort and classify, how to be autonomous and not manipulated.

And so all these factors of change converge towards the same need to cultivate an aptitude for autonomy. Needs are translated into objectives, and in order to achieve them school systems are inquiring closely into the very theory of education itself.

B. New developments in educational theory

Research has been primarily directed towards the personalisation of education, its adaptation to the pupil's specific abilities and rhythms. Personalisation may be defined as individual teaching, which is in turn defined by its ultimate end: the child finds and structures his own knowledge, working alone in the midst of a pupil community. Personalised education has only two basic principles: the use of active methods to teach the pupils how to conduct their own research and engage in methodical and thoughtful activity; and tailored teaching in the class, to make allowance for differences in ability and personality within a group of pupils.

Edcuationalists have looked for a method of teaching which would meet these requirements, and this has produced a host of new theories and experiments in personalised teaching.

The pioneer is the field seems to have been the nursery school: at the end of the last century, Mrs Montessori established the foundations of a method which has stood the test of time.

In the United States, the Dalton Plan (1920) virtually abolished all collective instruction at primary and secondary levels, with each child freely organising his own studies and time. Perhaps it went too far in doing away with formal lessons and relied too heavily on textbooks and written exercises. In Switzerland there is the Adolphe Ferrière active school where pride of place is given to individual work, but, while the child's spontaneity is cultivated, he still works to a definite plan. The pupils know where they are going and gradually move away from a foundation of class-teaching into individual work. Claparède, founder of the Jean-Jacques Rousseau Institute in Geneva, bases his practice on the exploitation of the child's natural tendencies. He is mainly interested in secondary, and especially upper secondary teaching, and proposes that pupils should spend half of their compulsory schooling time doing things in common while the other half should be devoted to courses and exercises among which they could choose freely and which would allow them to engage in a number of individual activities.

There are other methods of personalised teaching which are worth mentioning, but most are aimed particularly at the elementary school, such as the Ecole du Mail established by Dottrens in Geneva and, of course, the Ecole Freinet at St Paul de Vence.

Personalised teaching alone cannot guarantee the child's full development, however, and in particular it may not help him to live in a group or teach him **how** to work with his fellows.

Group work satisfies this need. Here the pupils are freely divided into teams and each team studies a subject chosen by itself or proposed by the teacher. A number of experiments have been built on this idea. In Sanderson's method, which employs group work at secondary level, the pupils have free access to laboratories, libraries and documents and choose their own teams to do the work they have assigned themselves.

Peterson, a professor at the University of Jena, has attacked the concept of the traditional class by imagining an entire "school community" based on the group; every group is autonomous and work-teams are formed freely within it.

In France similar experiments may be mentioned, although most relate to primary education: Cousinet's free group work scheme, Mory's experiment in the Langres primary schools, and the team work at the Ecole Freinet based on the exploitation of free composition by means of the "printing-press", the "school newspaper", inter-school correspondence, surveys and monographs on topics of local interest.

This trend in thinking about teaching methods has been accompanied by a more basic investigation of the specific process by which knowledge and skills are acquired. The most eminent psychologists have studied the question and the answers produced by scholars as different as Piaget and Bruner all converge.

In Psychologie et Pédagogie (Denoël, Paris 1969), Piaget wrote:

"The traditional school imposes the pupil's work upon him, it 'makes him work'. No doubt the child can inject a greater or lesser degree of interest and personal effort into this work, and there is considerable room for real collaboration between a good teacher and his pupils. But the logic of the system requires that the pupil's intellectual and moral activity remain heteronomous, because it is dependent upon the continuous control of the teacher-control which may, moreover, remain unconscious or be willingly accepted. The new school, on the contrary, calls for genuine activity and spontaneous work based on personal need and interest. As Claparède has rightly said, this does not mean that active education requires children to do whatever they like; it demands above all that they should like what they do and that they should act themselves and not be acted upon".

In his preface to Aebli's Didactique psychologique, Piaget more explicitly emphasises the need to "incite pupils to collective or individual activity. This is not solely justified, as is all too often supposed, by considerations relating to the psychology of interest or general behaviour motivation, but also by the very mechanisms of intelligence: the full assimilation of knowledge, with its most intellectual aspect as well, presupposes some activity on the part of the child and young person because any act of intelligence brings into play a series of operations that can only be effective if they have been prepared for by true actions. The operations are nothing more or less than the product of the internalisation and co-ordination of actions, so that no real intelligence is possible without activity". Intelligence is action, Piaget says, and facilitating the autonomous activity of the pupils is the way to encourage it.

We find the same observations in J S Bruner's Process of education where the author, studying the role of discovery in teaching, develops the idea that teachers should use techniques which lead pupils to discover generalisations by themselves - hence the importance of self-guidance and motivation.

Bruner does not say that discovery is the only form of learning, nor that students must discover the solution to every problem in a given field by themselves. A generation should not be expected to discover for itself the ideological and technological foundations of its culture. Beginners

in physics, for example, ought not to have to rediscover the technology of radio transmission as conceived by Marconi; but they can discover for themselves a few of the basic principles which may be seen operating in radio transmission. Learning in this way enables the student to reach a level of understanding far beyond that achieved by the mere memorisation of a chapter on radio in an electronics handbook. For Bruner, one of the aims of the new curricula is to bridge the gap between research and the classrooms. The child must be a scholar, a historian, an author, he must do his own research: in that way he will learn how to learn. That is the essence of transfer. The methods of research are more lasting than facts, and even than generalisations.

In The Relevance of Education, Bruner adds that it is not enough to attempt a reform by means of minor changes in the curriculum. "Any curriculum in which knowledge is not placed in the context of action must be replaced."

Educational practice has drawn widely upon these ideas, especially since an additional agent of transformation has emerged in the shape of the new educational technologies.

C. The emergence of educational technologies and their impact on teaching

The advent of new information sources and media and their incorporation into teaching methods has considerably strengthened the trend towards independent learning.

In the United States, the father of the library-college is generally said to be Louis Shores, as he was the first person, in a lecture given in 1933, to have conceived and publicised the idea of a library-college. The idea gradually became a reality in some American colleges which follow his teaching method to the letter, and in many more which have adapted it in varying degrees.

In substance, the library-college offers individualised learning which is usually programmed. In this context the pupil learns by himself, through his personal contact with the thoughts of the masters, and through the handling of tools. He acquires knowledge and skills by daily personal effort. Emphasis is placed on the manner in which learning is acquired, and the pupil may be said to be "learning how to learn", far more than absorbing knowledge. He may forget part of what he has learned within a short time after leaving school, but the method will remain with him as an essential tool throughout his life.

Another method very much in fashion in the United States is Doctor Postlethwaite's "audio-tutorial approach to learning". This method was developed in 1961 and was first tried out in plant biology classes, but it can be adapted to most subjects. In Quebec, the method has been widely followed at CEGEP (Collèges d'enseignement général et professionnel) level, in particular, especially as interpreted by the Montmorency CEGEP. One of the aims there is to personalise teaching by using every possible means of transmitting information from a multi-media centre.

Some modern technological aids, may be considered to facilitate, if not so systematically, the personalisation of learning and encourage independent work by the pupil.

To begin with, work on documentary material and the use of audio-visual messages refer the pupil to sources of information other than the teacher and the textbook.

The roles assigned to the media are therefore bound up with a radical change in teacher-pupil relationships as well as of their attitudes to knowledge.

More specifically, the educational technologies will be conducive to independent study:

- as teaching aids (thc traditional use of audio-visual media);
- as a means of helping pupils to acquire a critical method of receiving and analysing information;
- as new agents of expression: audio-visual media give pupils an opportunity to express themselves in widely differing ways, some better suited to their personalities than others, and make for a profound transformation in the style of their work and their manner of presenting it to their fellow pupils;
- an an aid to creativity, where they enable pupils to produce their own material;
- as a contribution to the personalisation of learning, by facilitating guidance, enabling pupils to move at their own speed and check new knowledge at every step of the way; this is particularly true of specialised teaching aids, programmed instruction and computer-assisted teaching.

The technologies alone, however, cannot alter the nature of the educational relationship. They create the conditions necessary for change but are not powerful enough alone to produce directly a new trend in education. The essential thing, it would seem, is to set up an overall educational projecc capable of using all the available aids to progress towards the very definite objective of pupil autonomy.

II. HOW CAN SUCH AUTONOMY BE DEFINED?

In the literature of education the term "autonomous work" was preceded by "independent study". What Decroly in Belgium, Ferrière and Claparède in Switzerland and Freinet in France had already investigated quite fully came back to us from across the Atlantic as "travail indépendant", a literal translation of "independent study". The term was officially adopted at international level, moreover, at the Berne Conference of European Ministers of Education in June 1973, which spoke of the need for a number of different educational methods tending towards personalised teaching and independent study by pupils.

As the French reply to the questionnaire points out, "the term originally chosen, owing to shifts in meaning, made possible by its very ambiguity, from independence to non-directivity, gave a particular slant to the methods adopted and procedure followed in the experimentation undertaken". It has accordingly become necessary to clarify the relationship between independent work and non-directivity.

Non-directivity is a concept developed by Carl R Rogers on the basis of a critique of psychoanalytic practice. It is a technique consisting in person-to-person conversations, but may lead to new attitudes in group behaviour. In the classroom, the way in which pupils acquire knowledge is of essential importance: "the only knowledge that can affect an individual's behaviour is that which he discovers for and appropriates to himself" (CR). In fact, says J Maisonneuve ("Le problème des attitudes", ARIP, Pédagogie et Psychologie des groups), "the problem of the educational relationship becomes different if we move beyond content to mobilise resources and if, instead of looking only at techniques, we pay attention to the attitudes which facilitate the mobilisation of resources and involve the whole of the individual or group".

In his work Où vont les pédagogies non-directives (PUF, SUP series), George Snyders says, in the introduction, "the whole movement is a crescendo: first the big brother, who gives helpful advice without ever imposing his authority; then Rogers, the therapist who is present but tries to weigh no more than if he were absent; and finally those who aspire to act through their very absence, their abdication. Politically, the crescendo moves from American-style 'liberal' democracy (Lewin) to anarchist utopias (Lobrot); epistemologically, from a certain sceptical mistruct of truth to a Kirkegaard-inspired Angst and refusal of the idea that there is any truth, that it is possible for the absolute to be grasped by man".

These interpretations of non-directivity, all highly theoretical, may be supplemented by a quotation from A de Peretti (Les contradictions de la culture et de la pédagogie): "the educational act cannot be a simple intellectual invitation to learn; it is also a strong emotional relationship between teacher and taught, one which must be lived with all the difficulties that entails ... The child experiences anxiety and very profound distress in his search for development and fulfilment; and if the class does not make him feel secure, encourage him, give him a sense of confidence, if it becomes a projection of the difficulties he experiences at home instead of a place for at least partial elucidation or compensation, then the unestablished communication will be translated into academic failure".

Does independent study have to be non-directive in this sense? J Maisonneuve argues that a class cannot be conducted entirely by non-directive methods. "Between the two extremes of didactic directivism and systematic non-directivism there exists a position which is not intermediate, but mediating. It consists precisely in combining the functions of information, control and elucidation, selected to suit the degree of urgency in the group, and it mainly involves facilitating the first two functions by means of the third, whenever the teacher-pupil relationship becomes troubled."

Non-directive methods continue to be widely criticised, however. Some of the major objections raised are mentioned below.

Some say that non-directive teaching cannot get beyond a "facile and spurious sort of Socratic dialogue". J C Passeron (in La Réforme de l'Université) writes: "At best - that is, in the case of non-directive teaching which succeeds because it is being applied by a real specialist - there is a flagrant discrepancy between what the students learn and the subsequent demands of the traditional examination which they still have to sit, and this produces a tension between them and the teacher-big-brother-counsellor no less acute than that resulting from the latent aggressiveness aroused by the traditional noble and remote father-figure".

Another objection stems from the fact that although the pupil certainly must achieve his own freedom from the authoritarian encroachments of the teacher, he cannot escape from his entire environment and previous conditioning. To free himself from this constraint the pupil needs the active mediation of the teacher, which thus becomes a liberating factor.

Lastly, at the level of the teacher-pupil relationship non-directivity claims that the learner teaches himself through the teacher, who fits into the process as a sort of instrument ("The teacher would be a living document, an expert to be consulted" - G Ferry). The entire process begins and ends with the learner. There is undoubtedly something very true in this statement, ie teaching is for the pupils and not the teacher. Nevertheless it fails to take into account the aspect of conflict, which is by definition part of the educational relationship.

These objections have been borne out by experience; the results of the many attempts to apply non-directive methods systematically have hardly been encouraging. Recourse to a form of "educational leftism" in the name of the freedom of the pupil favours the best pupils, those who are most strongly motivated and have the strongest family support, but tends to leave the less motivated and less supported out in the cold, left to themselves and thereby at a disadvantage. Passeron is certainly right when he says that "pupils from the educated classes are the best - or the least badly-prepared - to benefit from non-directive teaching". Snyders applies the Latin saying "corruptio optimi pessima" to non-directive methods, that is to say nothing is worse than the corruption of the best. "Non-directive concepts are founded upon the best possible goals; but when those goals have been subjected to non-directivity, when they have become non-directive teaching, I fear they have become corrupt in the literal sense."

The foregoing qualifications of non-directive methods should incite us to proceed with caution, and that is one of the basic reasons why the term independent study has been challenged, on the ground that it is too heavily impregnated with connotations of permissiveness and freedom from the pressures of school and the environemnt. The experts assembled by the Committee for General and Technical Education of the Council of Euorope accordingly preferred the expression "autonomous work" for autonomy does not carry such connotations; it has therefore been proposed as a substitute for "independent". This decision is only a partial solution to the problem, moreover, for no expression is perfect; what is essential is an exact definition of the objective pursued. To what extent is this objective recognised by the different school systems, and what results are they seeking?

The reports of the different countries written in preparation for the Council of Europe Conference on "Autonomous work by the pupil" held at Klemskerke (Belgium) from 22 to 26 November 1976) (1) clearly emphasised this idea of autonomy and several countries explained their understanding of the term at length. The final report of the meeting contains long passages on the problem, so there is no need to cover the same ground here; we shall simply summarise the comments of the French-speaking group on the concept of autonomy.

"Autonomous work is directed towards objectives, both cognitive and behavioural.

1. The autonomous approach should lead the pupil to think about this learning processes and take an active and responsible share in them. It will promote the development of his personality by cultivating his critical faculties and sense of responsibility. It is at once a means (acting autonomously is the way to become autonomous) and an end: the state of 'knowing how to be autonomous' of an adult faced with choices to make.

2. In so far as the autonomous approach modifies the pupil/knowledge relationship, it should lead to a deeper, because more personal, acquisition of knowledge and skills, and should facilitate the mastery of the instruments and methods needed for permanent education."

In addition to this more individual aspect, the socialising objectives of autonomous work were also stressed. The Swedish report for Klemskerke says that "School must stimulate each pupil in such a way that he is both willing and able to ... play an active part in public affairs ... liberty and independence must not be made an end in themselves. They must constitute the foundation of co-operation and partnership. Schools must therefore encourage their pupils not only to work autonomously but also to co-operate with their fellow pupils and other members of the school community in solving problems, collecting information and improving their skills".

How, in terms of the teaching process, can this higher degreee of autonomy, with all that it implies, be achieved?

III. HOW CAN AUTONOMY AND THE VARIOUS FORMS OF INDEPENDENT STUDY BE DEVELOPED?

The first thing is to realise that any systematisation in education is arbitrary. No one can argue the fact that every experience differs from every other, owing to the particular characteristics of each school system, school and class.

It is impossible, therefore, to try to supply models which can be applied in every situation; we must rather aim at establishing a typology of different practices. In this context we shall look separately at autonomous work by individuals and by groups, at primary and at secondary level, that is in relation to the children's degree of maturity. We shall then analyse the internal structure of autonomous learning processes to isolate their components, and lastly we shall see how autonomous work may be adapted to the special nature of different subjects, to the heterogeneity of school populations and to the demand for interdisciplinary work.

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A. Autonomous work by individuals or groups

One of the questions arising in connection with autonomous work has to do with the conditions of the work: is it to be done by one pupil alone, or in a group and in association with other pupils?

In America, independent work means the former, and it has often been found to foster excessively individualistic tendencies. The European countries seem to have understood this problem, as shown by the passage from the Swedish report quoted above, which insists upon the socialising aspect which autonomous work should have.

How is this objective to be achieved? The Spanish report for the Klemskerke Conference gives this answer: "The personalised education movement, which was at the source of educational reform, argues that personalised education allows each pupil to progress at his own speed. However, the movement is also aware that the individual can only achieve his full potential in society, and in a too highly-personalised method of teaching, there is the serious danger that individualism may be over-developed at the expense of solidarity; it accordingly maintains that the social aspects of the pupil's personality must also be strengthened. To this end it seeks to encourage teamwork, flexible groupings of pupils through which they can more easily take part in group activities, a real relationship to the community and the study of its problems".

Thus expressed, the answer is: concentrate more on work in teams or groups. In most European countries this is how the concept of autonomous work has been put into practice, although the relative proportions of individual and group work vary according to circumstances. In France, for example, group work is very strongly advocated.

Actually operating a group study scheme raises many problems, however: how are the groups to be formed, how are their subjects of study to be chosen, how is the work of the group to be developed harmoniously?

As a rule, groups are small (3 to 8 on average), and agreement on this point seems to be general. Opinions differ, on the other hand, as to the group's membership and life-span: some favour heterogeneous units, other homogeneous ones; some want the groups to be relatively permanent, others think they should be short-lived. Sometimes boys and girls are separated but more often they work together in the same groups. In France, for example, groups are most often formed freely, on the basis of affinity or interest for the subject or type of activity proposed. Personal friendships are found to be at least as important as interest in the subject. A third criterion may also be used in setting up groups: some modern language or maths teachers prefer homogeneous groups and form them on the basis of pupils' abilities or needs.

Thus the membership of the group may also vary according to the subject or activity, and this brings us to the problem of study subjects and how they are chosen.

On the whole, subjects are either chosen from the existing syllabus or from topics on the fringe of it which can serve to illustrate some part of the course in greater depth. Possibilities for choice may vary considerably,

moreover, depending on the discipline and on how rigid or free the syllabus is. There is little room for imagination, for instance, in the scientific subjects. The selections are made in various ways. Whether the subjects are proposed by teacher or pupils, the choice is generally the outcome of negotiation between pupils and teacher, in which the latter often simply explains what is involved in each choice and points out any potential difficulties. Let it be said in passing that these remarks about the choice of subjects apply to individual as well as to group work.

Many questions arise in connection with the conduct of group work: how is the group kept together, how does one ensure a fair division of labour, how much should the teacher make his presence felt inside the group? No hard and fast rules can be laid down, and in this area empiricism appears to carry the day. It is probably preferable for groups not to seem too firmly settled and their membership should be allowed to change in the interests of greater efficiency as the work proceeds, new members even being co-opted on the basis of interest. Relative mobility within groups should help to avoid certain dangers, such as individual pupils becoming imprisoned in the role of leader or parasite, and should also make for a greater turnover and a better rotation of tasks.

Furthermore, work in groups should not be imposed systematically upon every pupil; some may prefer to work on their own and others be rejected by the group or find themselves outside it simply because incompatibilities have caused the group to break up. It is then for the teacher gradually to lead back the "rebels" or "victims" to this type of work.

B. Autonomous work at primary and secondary levels

The major psychologists (Piaget, Bruner, Wallon) are primarily concerned with the young child and our new knowledge of the child's intellectual development has not surprisingly been applied initially to the modernisation of primary education; autonomous work fits naturally into this process.

The Dutch-language Belgian report at Klemskerke gives some information about autonomous work in the early stages of education. "The teaching and organisational conditions of elementary education are well-suited to the achievement of the objectives of autonomous work. Primary education employs relatively flexible curricula in which a large margin is left to the personal contribution and vision of the teacher. In the first two stages, the principle of observation of the environment is applied because it offers numerous possibilities to both teacher and pupils. In the third, a considerable degree of interpenetration of subjects is possible thanks to concentration on centres of interest, thematic teaching, the use of current events and the carrying out of projects."

In Scotland, primary education is founded upon children's needs and interests and the characteristics of their growth. The pupil's natural curiosity and desire to learn make him capable of pursuing his own education seriously and purposefully on the basis of his own choices. The acquisition of knowledge and skills is balanced by the cultivation of his ability to acquire knowledge independently.

In France, the adoption of the "tiers temps" system and, even more, the emphasis on interest-arousal activities have led primary education into a new phase. Interest-arousal activities should contribute to the child's harmonious overall development; some of their objectives are the following:

- accustoming pupils to autonomy and the assumption of responsibility;
- the cultivation of curiosity, a sense of play, the capacity to wonder and ask questions;
- the development of the ability to invent, create, imagine, analyse and sum up;
- the development of sensitivity, aesthetic sense and physical aptitudes.

Interest-arousal activities should also contribute to the child's social and moral education and help him to acquire skills, methods, and knowledge.

As we see, this is an ambitious project; experience thus far has not proven it over-ambitious however, but primary education still has a long way to go for the full potential of interest-arousal to be realised. The main thing, however, is that objectives have been defined and an approach adopted.

The English-speaking groups and the mixed group at the Klemskerke Conference were very definite about the value of autonomous work beginning at primary level, and observed that the method was becoming widespread in their countries.

This being so, what is increasingly becoming a general objective at primary school must be continued at the secondary level, although there, autonomous work must undergo substantial changes.

Even the transition from pre-school to primary school implies a radical change of pedagogical orientation. As knowledge and learning are not the objects at the pre-school level, its organisation is far freer; but in the primary school, cognitive objectives and the associated knowledge and skills make their appearance, and the background of spontaneity, creativity and play disappears to a considerable extent. Emphasising interest-arousal and autonomous work does help to bridge the gap, but it is still there.

The move from primary to secondary is even more disruptive. Pupils change from a single teacher to a series of different ones, each teaching one subject or a group of related subjects. Curriculum demands become steadily greater, whence the need to employ methods that will ensure at least a minimum of cognitive progress. As they grow up, the children quickly lose much of their spontaneity and enthusiasm and more readily adopt passive attitudes, the examination becoming their ultimate and all too often sole ambition. On the other hand, the maturity they acquire over the years, combined with their past learning, enables teenagers to take more interest in the problems of the world around them, and causes them to affirm their autonomy and to demand respect for their personality with greater assurance.

At the secondary level, thus, autonomous work is compelled to remain closer to the curriculum but its progress ought, at the same time, to inspire more adult behaviour.

C. The structure of autonomous work

Autonomous work may be used in two different ways, one of which may be called "marginal" and the other "integrated".

1. "Marginal" applications

These are cases where autonomous work appears only at one point in the educational process, and is distinct from the ordinary teaching pattern.

In the United States "independent study" is often designed as a supplement to the teacher's instruction; during the 1972-73 school year at West Maine High School in a north Chicago suburb, for instance, independent study was employed as a supplement to the ordinary science course, for the best pupils only. In the 60 high schools of the Chicago urban district the practice is the same: independent study is simply a supplementary activity and concerns only the motivated minority.

In Canada, in the province of Ontario, a pupil may engage in independent study at secondary level under the teacher's supervision, but he need not sit in the classroom or even come to school at all: he may work at the library or at home. For highly motivated pupils this arrangement seems to produce good results. Independent study may indeed be incorporated into the official timetable, for a pupil may choose a "credit" involving 110-120 hours of individual work during the year. In an average school with 1,500-1,600 pupils, only 1-2% choose independent study credits.

The Swiss reply to the Council of Europe questionnaire on autonomous work observes that "although independent study or work in small groups has existed for a number of years and in many schools, on the ground that it is stimulating for many pupils, the practice is definitely an exception and occupies only a small portion - a week or a few days, depending on the case - of the school year".

The 10% of the school timetable which, in France, must be devoted to "original activities" may be regarded as having a similar purpose, like the "integrated study period" in Belgium or the transition year in Ireland.

This type of innovation is positive and stimulating, and adds to the number of approaches to autonomous work. The English-speaking group at Klemskerke thought that autonomous work had existed at one time or another in most countries under various names, represented by such activities as projects in one or more subjects, the use of self-teaching materials, a single day or a week fitted into the curriculum, free study hours etc.

These variants have never been lasting or consistent enough, however, to be seen as really autonomous; they seem too much like a drop of freedom in a bucket of constraint or a parenthesis, to produce any real change in the learning relationship or radically transform the traditional style of education. The objective of autonomy can only be achieved by making autonomous work an integral part of the regular educational process.

2. "Integrated" applications

Their main purpose is to cultivate in the pupil a lasting aptitude for autonomy by means of diversified educational situations: class teaching, individual and group work etc. The report of the French-speaking group at Klemskerke states that "it is through the combined effects of differentiated, more or less directive actions (lessons by the teacher, individual or group work, tutoring etc) selected by the teacher according to the educational situation, the pupil's level, the phase of work, the requirements of the particular subject etc, that the objective of autonomy should be approached. The different forms of educational action should form a single coherent process".

Thus pupils are not autonomous all the time and class teaching is not excluded; but all educational activities, and especially the teacher's lessons, are planned and carried out with a view to achieving autonomy.

In view of the diversity of possible approaches, it is difficult to calculate the percentage of school time devoted to really autonomous work. In France, autonomous work proper (documents research, work in groups, reporting on work etc) is estimated, in the experiments going on under official supervision, to account for 40% of the timetable.

Chalmette High School in St Bernard, a suburb of New Orleans (USA) is one of the schools taking part in the Trump plan experiment; here school time is divided up as follows: in the 8 major areas of knowledge, pupils must listen to 8 hours of presentation in large and small groups each week (30 minutes in a large group and 30 in a small, for each subject of study). They then have 22 hours a week for independent study at school and occasionally elsewhere.

In Sweden, the Office of Education made a survey among social science teachers (religion, civics, history and geography), which produced the following percentages for the different working methods:

- information imparted by teacher 24%
- class discussion 11%
- group work 17%
- individual work 34%
- study visits 6%
- other 3%

Methods thus vary widely and any attempt to systemisation would seem risky. There is no ideal figure below or above which there is no more autonomous work. The objective of autonomy may be sought by various means; the main thing is that the search bears fruit.

It may be possible, however, to define a particular attitude on the part of the teacher in the different phases of autonomous work.

3. The phases of autonomous work

With regard to general principles, the French report to the Klemskerke Conference gave the following definition of the present situation: "The attitudes of the great majority of teachers avoid both extremes of total non-directivity and permanent guidance; they feel strongly that there is need for the teacher's intervention, which they see as reassuring and stimulating, because learning to be autonomous is an arduous and often disheartening business. Without playing the part of a mother-hen the teacher ought, as one of them says, to be continually 'on the alert for signs of discouragement and abdication'. But his action should also be administered in careful doses, suited to the phases of the work, the characteristics of the group, the type of pupil, their personality and the level of the class. The style and nature of his action will change as the year advances, being more like traditional class teaching at times, more personalised at others, and moving in the direction of increasingly differentiated support. The teacher's chief tasks lie in preparing the work, watching over its progress and evaluating the results."

- Preparation may be more or less ambitious, ranging from the mere provision of information on the nature and purpose of the autonomous work to be done to a full psychological and methodological introduction. Some teachers regard the latter as rather futile and think that by trial and error is the best way to learn. Most, however, while not denying this, agree on the need for some methodological preparation which, still according to the French report, may assume different forms:

  - familiarising pupils with different sources of information and knowledge (texts, maps, films, newspapers etc) and demonstrating the aids at their disposal (documentation and information centres, libraries, resources centres etc);

  - teaching a number of specific skills or techniques (how to use a card-index, to draw up a data-sheet, to make an audio-visual montage, to make an abstarct of a document, etc);

  - teaching how to work in a team (allocation of tasks, comparison of ideas, production of a joint piece of work);

  - learning or reviewing the basic knowledge required to combine information into a solid structure and move forward in a study project with assurance. Progress if often achieved by providing pupils with an assortment of teaching aids (method cards, questionnaires, programmed cards, etc).

- Action while work is in progress

The teacher plays every part, he may step in occasionally at the request of some groups (the more independent ones) or systematically with those having difficulties. In some cases he may need to involve the entire class in order to sum up the progress made or to head the work in a new direction, "but whatever the form of their action, teachers must be careful that it does not conflict with the objective of autonomy, and is not seen as invalidating or belittling the pupil's work, but rather as supporting them in learning autonomy".

- Reporting on work

This is essential for both psychological and educational reasons; it enhances the value of pupils' work, and brings them together again as a class after being scattered in groups or working alone. It also enables the teacher to "pull things together" and clear up points, and forms a basis for an evaluation of results.

The usual form of presentation is an oral report by pupils about their work. As a rule this is rather a tedious exercise and not greatly appreciated by the rest of the class; it should therefore be kept to a minimum. More effective and varied forms of presentation may also be used, such as audio-visual montages, annotated "mini-dossiers", a report followed by a debate, the exchange of dossiers between groups and comments on them used as material for a written test, etc. In some cases, so as not to lose too much time, teachers may seek to make the most of the work done by using it in their own lessons and consulting the authors on specific points.

D. Autonomous work and individual subjects, interdisciplinarity, support

Autonomous work must adjust to the pupils' widely varying standards, degrees of maturity and motivations and it must also take into account the particular features of each subject taught. This type of work seems best suited for the human sciences, literature and experimental subjects, rather than for languages and, especially, mathematics.

With regard to foreign languages, Mr Denis Girard, Inspector General of English Teaching, made the following comments in No. 3, 1974, of Amis de Sevres (the author uses the term "independent study", which was then in vogue, instead of "autonomous work").

"Can independent study be said to be particularly propitious to the learning of modern languages? The reply must be qualified; it can be affirmative to the extent that modern language teachers have long been aware that their instruction cannot take the form of class lessons and implies the constant, active and personal participation of the pupils ... Guided work leaving room for a substantial degree of personalisation has long been employed in language classes and often with success. On the other hand, the reply will be negative if we think of the special demands of modern language teaching. To begin with, there is the fact that throughout the entire school career, two things must take place simultaneously: the acquisition of the instrument of knowledge and communication and the acquisition of knowledge (cultural, linguistic, literary etc) itself through the use of the never perfectly mastered instrument of the foreign language. Then, there is the emphasis on the spoken language, which usually demands a model (the teacher, a foreign assistant or recordings), a guide capable of correcting, repeating and re-correcting, a partner in conversation who can stimulate and direct. One hardly sees how pupils could be left to their own devices with nothing but documentary material, which is what is implied by independent study, where the teacher's assistance must be very discreet. But although over-personalisation is dangerous, the qualified reply given here suggests that well-planned group work does have a place in language learning. Some teachers have seen independent study as a possible solution to the daunting problem of reawakening interest in the upper secondary classes."

I would add one further observation, by a specialist, to these statements: the progress of educational technologies should make it possible to achieve an increasing degree of personalisation of the pupil's work in the spoken language.

On the subject of mathematics, opinions are more categorical. Some people reject all possibility of really autonomous learning here, because of the subject's rigorously linear point-to-point progress.

The English report for Klemskerke says, with regard to mathematics, that proper instruction in the subject requires that the pupil dispose of a variety of instruments for solving problems. This may be readily provided with autonomous work, but the technique is hard to master in the early stages and it calls for extremely able and experienced teachers.

In the United States, programmed material in "packages" is widely used for the independent study of mathematics. Progress is rigidly graduated with this material, which also provides for self-assessment. In Sweden some interesting applications have been used in association with the IMU project (1); here the problem becomes one of the documentary support, rather than of the nature of the subject.

In France, the practice of autonomous work has recently been adopted in the field of technology, in connection with "interest-centre" teaching. The idea behind the experiment is that a group's energy is focussed on a theme or centre of interest which consitutes in itself a unit of mechanical or electrical know-how. The entire school year is taken up with the production of that unit, which mobilises and integrates all the knowledge acquired in general and technical subjects. This example, and there are many others, shows that all subjects can lend themselves to productive autonomous work, on condition that the way in which it is employed is suited to the particular nature of the subject.

The concept of <u>inderdisciplinarity</u> needs clarification; in a recent article in <u>Education and Culture</u> (periodical of the Council for Cultural Co-operation of the Council of Europe), Mr Roy Wake proposes the following definition: "Interdisciplinarity - interaction and co-operation between two or more disciplines. This interaction and co-operation may range from simple communication of ideas to the mutual integration over a wide field". Thus far, the latter has seldom been achieved and when integration tends in that direction, as the Norwegian report to the Klemskerke Conference observes, it is thematic rather then methodological.

The report of England and Wales is highly critical of the relationship between interdisciplinarity and autonomous study.

"It cannot be seen irrefutably that there is any favouring causal connection between autonomous learning and the success of interdisciplinary work through the use of themes. It just happens that teachers who want to experiment with autonomous learning are likely to be the same ones who see virtue in the pursuit of themes. Experience is often that in the hands of the

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(1) Individualiserad Matematik Undervisning.

average practitioner, the coherence of these themes (often adult-perceived rather than child-perceivable) is substantially diminished when autonomous learning predominates. Themes are more likely to have an impact if the exploration is handled on traditional lines, with the teacher helping the class to make the illuminating connections. ... Mastery of method, the acquisition of know-how, and the accumulation of knowledge are all strands in a single rope and are of interdependent value; weaken one by allocating it a subordinate position, and the whole suffers."

Autonomous work alone is plainly not enough to ensure the success of an interdisciplinary project. In France, for example, the difficulties encountered in setting up and, even more, in continuing this type of experiment are sufficient proof that caution is de rigueur. Autonomous work can, however, be of undoubted value. The subjects which pupils chose to work on in groups are often seen to expand and overflow the boundaries of a single discipline. The break with the traditional educational pattern, moreover, entails a challenge to organisation of the classroom, and necessitates more frequent contacts between teachers (team teaching); in this way, the barriers between subjects are broken down more naturally and easily.

Mr Wake's article (quoted above) emphasises a number of conditions which must be met if interdisciplinary activities are to be effective. Those conditions can be established with an eye to the kind of autonomous work defined above, that is, an activity which is substantially controlled and led by the teacher in accordance with the differing demands of the subjects of study and the unequal attainments of the pupils.

Some experiments with autonomous work have raised the problem of equality of opportunity in relation of this type of work. Research has indicated that the less able pupils show poorer results in autonomous learning than do the most able. Elsewhere, however, stress has been laid on the remarkable degree of motivation produced by the method. In this connection, one French teacher has said that "it enabled us to 'get real work' out of children who had never made the slightest effort since they first entered the lycée, and to disentangle some difficult cases".

There is nothing remarkable in the fact that results differ depending on the type of pupil and presumably on the approach adopted as well - what matters is whether autonomous work tends to increase or decrease the differences. American experience with independent study showed that the most able pupils and those with the best support in the family derived the greatest benefits from the freedom given them, whereas those who were already having trouble fell even farther behind than in a more traditional teaching situation. The approach to independent study in the United States is quite unlike that found in Europe, where the objective of autonomy nevertheless implies relatively active intervention by the teacher.

In connection with the question of greater equality of opportunity, two forms of intervention are favoured above other possibilities:

- help by fellow members of the group, with the more able or enthusiastic supporting and inspiring the rest;

- action by the teacher to make the best use of the opportunities offered by autonomous work (meaning, for some pupils, freedom from the sense of being under the teacher's thumb) to give more attention to pupils with problems.

IV. EVALUATING AUTONOMOUS WORK

The evaluation of autonomous work was a central issue at Klemskerke and the space devoted to it in national reports is sufficient proof of its importance.

The French-speaking group, and the mixed group stressed the distinction between internal and external evaluation, and the English-speaking group contrasted "assessment" with "evaluation".

For the French-speaking group, the term evaluation meant an assessment based on relatively qualitative and subjective judgements. Two types should be carried out:

- external, whose aim is to measure and evaluate the results of educational methods aiming at autonomy in comparison with other approaches. The mixed group referred to a large body of research completed and in progress in this connection. A few experiments were mentioned specifically: in Scotland, for example, it seems that university students with some training in autonomous work make better progress than those without it. In the Federal Republic of Germany, Fend has compared Gesamtschule pupils with those from traditional schools and found the former more co-operative and less subject to anxiety than others. In Sweden, pupils who had been accustomed to autonomous work were found to obtain better results in all examinations testing the higher forms of cognitive knowledge (Bloom's taxonomy) such as analysis, synthesis, evaluation and creativity;

- internal evaluation takes place at the level of one or more classes and is concerned with learning, skills and behaviour resulting from autonomous work. The mixed group distinguished between cognitive evaluation involving knowledge at the highest level (Bloom's cognitive skills) and affective or behavioural evaluation (behaviour in this instance refers to the general category of "attitude" rather than to behaviourist definitions).

Internal evaluation may be normative or formative; the English-speaking group used the terms "formative assessment" and "summative assessment". Much emphasis was laid on the formative aspect of assessment which should enable the pupil gradually to acquire the ability to evaluate his own progress. For the French-speaking group, "it is necessary, therefore, that the pupils should be associated, as soon as possible and by degrees, with the process of evaluation used as an aid and encouragement. Evaluation should be based on an exact definition of objectives. The criteria and methods employed should also be clearly defined".

Stress was laid on self-assessment as the most important objective of evaluation, for this would enable the pupil to situate himself in relation to himself and to others.

Internal assessment is made by the teacher, the pupil, the group or the class, employing methods which make it really formative. For most of the people at the conference, however, evaluations of behaviour were to be used with caution; their main function was to help the teaching staff and pupil to see what decisions were to be taken and to take them in a clear-headed and responsible fashion.

Before leaving the subject of evaluation we should observe that this is a rapidly developing area and the initial results may be described as feelings rather than findings. Here it should be pointed out that some of the reservations expressed (slowness of progress, incomplete coverage of curriculum - the latter a subject of great concern in the English-speaking group's report) often reflect less upon the method itself than its integration into the present educational and institutional structure (curriculum design and types of examination).

Furthermore, as the French report observes, autonomous work not infrequently incurs the reproach "that it fails to solve all the problems which traditional teaching methods have been unable to solve, or that it confuses cause and effect. Some of the points which teachers put on the negative side of the balance-sheet - lack of method, inability to analyse a text, compilation, difficulties of composition, lack of initiative, superficiality of thought, inequality in pupils' output etc - are not caused by the autonomous work situation but are shown up by it. In fact, they represented the pupil's basic state, which autonomous work is meant to alter".

V. CONDITIONS FOR PROGRESS

The increased use of autonomous approaches depends mainly on developments in the areas of curricula and examinations, teaching aids, teacher training and, lastly, the organisation and equipment of schools.

A. Curricula and examinations

Experiments carried out in France have shown that "it is difficult to reconcile the amount of time consumed by this approach with the size of curricula, especially in examination classes and even more in scientific subjects. The choice of themes is still not flexible enough for a smooth adjustment of examination programming, which creates mental stress and weighs upon the organisation of work, to a time-consuming autonomous approach which is founded upon the pupils' right to proceed by trial and error. On this point, the teachers' proposals regarding curriculum revision range from simple 'thinning out' to total redefinition in terms of behavioural objectives (being able to) and no longer merely in terms of separate concepts or questions to be covered."

"The Nature of the Curriculum for the Eighties and Onwards", an OECD publication, speaks of the new approach to curricula as follows:

"The teaching approach to each group of subject-based activities will be concerned less with the acquisition of short-term factual knowledge than with the development of long-term conceptual understanding. The emphasis will be on the structure, not the content, of the various constituent disciplines or to put this another way, and to reaffirm what has been said in Chapter I about the need to develop active attitudes to inquiry instead of acquisition of knowledge, there will be greater concern with the techniques of solving new problems than with the already known solution of familiar problems."

Working party reports at the Klemskerke Conference were unanimous in stressing the need to design curricula in terms of objectives; this appears to be an overall trend in Europe.

New courses and methods will require new examinations. Without returning to the previously-mentioned problem of evaluation, we will simply say that autonomous work will have to be taken properly into account in tests and examinations. In addition, machinery should be devised for self-assessment. Continuous assessment instead of testing at intervals should also foster the development of autonomous work.

B. Teaching aids

Pupils cannot work and think on their own unless they have some material, written or audio-visual to work on, and it has become almost a truism to say that the essential foundation for autonomous work is the documentation or resources centre.

Experiments have given a clearer insight into the types of document needed for autonomous work. The surest way to kill autonomous work rather than promote it is to confront the pupil with material which is too difficult for him, or with a research project for which he has neither the necessary mental maturity, knowledge or training. Secondary school pupils are not researchers, and the difficulties must be graded.

In our teaching situations, the most effective material will be that which can be used immediately, without lengthy researching, and which offers no major difficulty of approach. Of course, at chosen points in the pupils' careers, it is a good thing for them to be gradually familiarised with the techniques of research and given a basic idea of how to deal with a wider range of more complex material. But this must be done only occasionally if pupils are to get through the syllabus without too much loss of time.

Experiments in autonomous work have often shown that the material now available does not really suit its purpose, either because it is too systematic to leave any room for research, or else because it is not carefully graded as the subject requires. In the human sciences, for example, the range of information must be very wide, whereas in mathematics programmed material is definitely useful.

More suitable materials are now being produced; in the Anglo-Saxon system, they are known as teaching aids. The Trump plan in the United States offers programmed aids called packages. The Swedish IMU scheme has produced an interesting example of a teaching aid. With this system of international repute, it is possible to teach mathematics to the upper classes of the Grundskola (lower secondary school) in a totally personalised way. The course is divided into teaching units whose components vary according to the pupils' levels. The large number of units and components means that there are many possible ways of working through the course. In France, the teachers at the Louis Lumière CES (lower secondary school) of Marly-le-Roi, have produced specific materials expressly for the self-documentation centre. UTAs (autonomous work units) have also been designed and are being tried out with an eye to the more general purpose of guiding the learning process.

It may be thought desirable for teachers and pupils to take a hand in the production of materials, for they can then be more closely adjusted to the requirements of the class. Opinions differ, however, as to the effectiveness of participation by pupils.

C. Organisation and equipment of schools

The problem of the organisation and equipment of schools must not be under-estimated. The main obstacles are the following:

- Timetables are often divided into too many periods and do not lend themselves to decompartmentalisation, interdisciplinarity or team teaching. Putting together the timetable is the "first educational act" of the school year and it must be done having regard to the educational approach that has been adopted. Redividing school time into time "credits" to be used not in the course of a week but over a longer period (fortnight, month or term) might facilitate the task. Such autonomy and flexibility of use would make it possible to concentrate certain phases of work so as to achieve greater continuity and avoid the dissipation of effort.

- With regard to equipment, the obvious point to make is that a well-equipped and easily accessible documentaion or resources centre is essential. To keep it from becoming overcrowded there should be annexes or specialist rooms where the needed materials and equipment may be obtained without difficulty. This is where a generous supply of audio-visual equipment and material becomes important.

Problems of equipment should be considered in relation to functional architecture. The design of old school buildings is often unsuitable for autonomous work (too few and too small study rooms and, often, no small sound-proofed rooms in which to listen to and remake tapes). Readily adaptable premises are essential for autonomy-oriented education, but this does not mean that nothing can be done with less suitable premises: one must simply aim less high.

Teacher training was discussed at great length by the working groups at the Klemskerke Conference and all their reports speak of the need for special initial and in-service training in this context. A lack of psychological and methodological preparation is the source of much loss of time, bungling, failure and discouragement.

Supplementary theoretical and practical training should deal with learning processes, adolescent psychology and the role of affectivity in school behaviour, questions of evaluation, group problems (dynamics, observation, intervention, work), different means of expression and their mastery and, more broadly, with modern educational technologies.

Many institutions have a role to play in initial and further training, and in particular the training centres, universities, educational research centres, inspectorates etc. The function of education authorities at all levels might be:

- to create the conditions (psychological, administrative, etc) which will enable teachers to emerge from their isolation and discuss the questions that occur to them with one another;

- to facilitate the clarification of teachers' needs;

- to help them to change their attitudes towards new educational methods;

- to facilitate the dissemination of information (in particular by setting up educational documentation centres at regional, national and European level).

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Assistance of the various kinds described should enable teachers and pupils to launch themselves into autonomous work without feeling that they are having to row against the mainstream of the present school situation.